DEPARTMENT OF HOMELAND SECURITY WEATHER PROGRAMS

The Department of Homeland Security (DHS) has three primary missions: Prevent terrorist attacks within the United States, reduce America's vulnerability to terrorism, and minimize the damage from potential attacks and natural disasters. The department's first priority is to protect the nation against further terrorist attacks. Component agencies will analyze threats and intelligence, guard our borders and airports, protect our critical infrastructure, and coordinate the response of our nation for future emergencies. Besides providing a better-coordinated defense of the homeland, DHS is also dedicated to protecting the rights of American citizens and enhancing public services, such as natural disaster assistance and citizenship services, by dedicating offices to these important missions. DHS has Five Major Divisions, or "Directorates": Border and Transportation Security (BTS); Emergency Preparedness and Response (EPR); Science and Technology (S & T); Information Analysis and Infrastructure Protection (IAIP); Management. Besides the five Directorates of DHS, several other critical agencies folded into the new department or were created: United States Coast Guard; United States Secret Service; Bureau of Citizenship and Immigration Services; Office of State and Local Government Coordination; Office of Private Sector Liaison; and the Office of Inspector General.

On March 1, 2003, the Department of Homeland Security (DHS) assumed primary responsibility for ensuring that emergency response professionals are prepared for any situation in the event of a terrorist attack, natural disaster, or other large-scale emergency. This entails providing a coordinated, comprehensive Federal response to any large-scale crisis and mounting a swift and effective recovery effort. DHS will also prioritize the important issue of citizen preparedness, and educating America's families on how best to prepare their homes for a disaster and tips for citizens on how to respond in a crisis will be given special attention at DHS.

Homeland Security Presidential Directive #5 (HSPD 5), states that "to prevent, prepare for, respond to, and recover from terrorist attacks, major disasters, and other emergencies, the U.S. Government shall establish a single, comprehensive approach to domestic incident management." It also assigns the Secretary of the Department of Homeland Security the role of principal Federal official for domestic incident management. Based on previous Federal guidelines and legal authorities, a number of Federal agencies have responsibilities, depending on the scenario, and each agency has developed or has access to source-term estimates, dispersion modeling, and consequence assessment capabilities to meet their responsibilities. For a domestic incident, these capabilities would be coordinated by the Secretary of the Department of Homeland Security in cases where a Federal response is required and authorized.

Over the coming year, the goal is to develop an all-hazards dispersion support framework, initially based on atmospheric dispersion modeling and consequence assessment, to support the DHS Secretary in his role as principal Federal official for planning, preparing, and responding to domestic incidents. This framework will provide tailored all-hazards dispersion support to DHS and its Homeland Security Operations Center (HSOC). The primary and most urgent objective is to provide the best available information for atmospheric hazard predictions so that DHS can make appropriate emergency response and consequence management decisions. This effort is based on the work and recommendations of the OFCM-sponsored Joint Action Group on the Selection and Evaluation of Atmospheric Transport and Dispersion Models (JAG/SEATD) report, Atmospheric Modeling of Releases from Weapons of Mass Destruction: Response by Federal Agencies in Support of Homeland Security, August 2002, and the National Research Council's (of the National Academies) Board on Atmospheric Sciences and Climate report, Tracking and Predicting the Atmospheric Dispersion of Hazardous Material Releases: Implications for Homeland Security, 2003.

EMERGENCY PREPAREDNESS AND RESPONSE (EPR)

In March 2003, FEMA joined other Federal agencies, programs and offices in becoming the Department of Homeland Security. The new department brings a coordinated approach to national security from emergencies and disasters - both natural and man-made. About 2,600 full-time employees in FEMA are supplemented by more than 4,000 stand-by disaster reservists.

In carrying out its role, FEMA works with all of the agencies to assure that the delivery of meteorology-related information is conducted in keeping with established goals and objectives. As administrator of the National Flood Insurance Program (NFIP), FEMA publishes Flood Insurance Rate Maps for all flood-prone communities, which serve as the official demarcation

for flood risk. FEMA administers the National Hurricane Program and, for regions subject to hurricanes, publishes hurricane evacuation zone maps based on surge model simulation results from the National Weather Service's National Hurricane Center.

FEMA priority interests with OFCM are in supporting the FEMA pre-disaster initiatives and in promoting standards and procedures which will enhance the ability of the Nation to mitigate and recover from emergencies and disasters (Figure 3-DHS-1). These interests extend to national standards for geographic information systems (GIS) used for delivery of meteorological products and services by other agencies. FEMA also actively supports the OFCM-sponsored Working Group for Post-Storm Data Acquisition (WG/PSDA) and the WG/PSDA's efforts to develop a National Plan for Post-Storm Data Acquisition to coordinate and support the collection, by the Federal agencies, of perishable data after major storms. These data have potential applications in post-disaster mitigation activities, the NFIP flood hazard analysis, the FEMA National Hurricane Program hurricane evacuation studies, and other FEMA risk analysis activities, such as the Multi-Hazard Loss Estimation Methodology (HAZUS). The Risk Analysis Branch is the principal contact for hurricane evacuation studies and flood risk analysis as well as the FEMA contact point for meteorology-related matters. For additional information see www.fema.gov.

UNITED STATES COAST GUARD (USCG)

Since March 2003, the Commandant of the Coast Guard reports directly to the Secretary of Homeland Security. However, the USCG also works closely with the Under Secretary of Border and Transportation Security as well as maintain its existing independent identity as a military service. Upon declaration of war or when the President so directs, the Coast Guard would operate as an element of the Department of Defense, consistent with existing law.

Although no U.S. Coast Guard (USCG) cutters or shore units are solely dedicated to meteorology, they collectively perform a variety of functions in support of the national meteorology program. USCG ocean-going cutters and coastal stations provide weather observations to the National Weather Service (NWS). Coast Guard communications stations broadcast NWS marine forecasts, weather warnings, and weather facsimile charts and, also, collect weather observations from commercial shipping for the NWS. The Coast Guard also operates the LORAN C radionavigation system and the Maritime Differential GPS (DGPS) Service. The LORAN C system provides Position, Navigation, and Timing (PNT) information to a variety of navigation and non-navigation users throughout the continental U.S. and Alaska (e.g. radiosondes). The Maritime DGPS Service is an augmentation to the GPS that improves GPS-only accuracy to better than ten meters and provides DGPS coverage to coastal areas of the continental U.S., the Great Lakes, Puerto Rico, portions of Alaska and Hawaii, and portions of the Mississippi River Basin.

Figure 3-DHS-1. Bay Minette, AL, July 14, 2005. The FEMA mobile Disaster Recovery Center helps applicants with the FEMA recovery process by making it easier for applicants to apply for FEMA aid. It contains phone lines and wireless telecommunications. Many areas of southern Alabama were affected by Hurricane Dennis. FEMA Photo/Mark Wolfe.

Coast Guard operates three polar icebreakers - USCGC POLAR STAR, USCGC POLAR SEA, and USCGC HEALY - to serve our Nation's security, economic, environmental, and scientific interests. These vessels make important marine environmental measurements during dedicated science deployments or in conjunction with other missions.

USCGC HEALY, a new icebreaking research vessel, was delivered to the Coast Guard in November 1999 and conducted successful shakedown tests of the hull, machinery, and scientific equipment during January-August 2000 (Figure 3-DHS-2). The first unrestricted science cruise was conducted in the Eastern Arctic in the summer of 2001. HEALY, has a length of 420 feet, beam of 82 feet, and displaces over 16,000 tons. Scientific sys-

Figure 3-DHS-2. USCGC HEALEY, the Coast Guard's new icebreaking research vessel, conducting ice trials.

tems and gear include a bottom mapping multi-beam sonar system; a sub-bottom profiling system; a conductivity-depth-temperature data system; an expendable oceanographic probe system; an Acoustic Doppler Current Profiler; a jumbo coring system; a continuous flow, seawater sampling system; a meteorological measurement system; and a bow tower for clean air experiments. To schedule time on HEALY, see the UNOLS web site, *www.unols.org*. For more information, see the Coast Guard web page for HEALY, *www.uscg.mil/pacarea/healy/*.

USCG conducts the International Ice Patrol (IIP) under the provisions of the International Convention for Safety of Life at Sea (SOLAS). The IIP uses sensor-equipped aircraft to patrol the Grand Banks of Newfoundland to locate and track icebergs which pose a hazard to North Atlantic shipping. Direct observations are supplemented and extrapolated using a numerical iceberg drift and deterioration model. IIP determines the geographic limits of the iceberg hazard and, twice daily, broadcasts iceberg warning bulletins and ice facsimile charts which define the limits of the iceberg threat during the iceberg season (spring and summer). IIP annually archives data on all confirmed and suspected icebergs, and forwards these data to the National Snow and Ice Data Center. These data can be accessed via the IIP web page *www.uscg.mil/lantarea/iip/home.html*. Archived data contains all iceberg sighting data along with the last model-predicted position of each berg.

The Coast Guard participates with the Navy and NOAA in conducting the National Ice Center, a multi-agency operational center that produces analyses and forecasts of Arctic, Antarctic, Great Lakes, and coastal ice conditions.

The Coast Guard also collaborates with NOAA in operating the National Data Buoy Center (NDBC) which deploys and maintains NOAA's automated network of environmental monitoring platforms in the deep ocean and coastal regions. Five Coast Guard personnel fill key technical and logistics support positions within NDBC. Coast Guard cutters support the deployment and retrieval of data buoys, and provide periodic maintenance visits to both buoys and coastal stations, expending approximately 180 cutter days annually. Coast Guard aircraft, small boats, and shore facilities also provide NDBC support.

Meteorological activities are coordinated by the Ice Operations Division of the Office of Aids to Navigation at Coast Guard Headquarters. Field management of Coast Guard meteorological support services is accomplished at the Coast Guard Area and District levels.